



**AMREF INTERNATIONAL UNIVERSITY  
SCHOOL OF MEDICAL SCIENCES  
DEPARTMENT OF REHABILITATIVE MEDICINE  
BACHELOR OF SCIENCE IN PHYSIOTHERAPY  
END OF TRIMESTER EXAMINATIONS SEPTEMBER TO DECEMBER 2022**

**UNIT NAME: PHT 323 PHARMACOLOGY IN PHYSIOTHERAPY**

**INSTRUCTIONS**

- 1. All students will have two (2) hours to complete the examination**
- 2. Attempt all questions as per the instruction**
- 3. It is the student's responsibility to report any page and number missing in this paper.**
- 4. Check that the paper is complete**
- 5. Total number of pages is 12 including the cover.**
- 6. Read through the paper quickly before you start.**
- 7. The exam is has 3 sections, Section 1 and 2 have 10 questions each. Section three has 40 questions. Total of 60 questions.**

## SECTION ONE

1. How many half-lives would be required for a 100 mgs of a drug to decrease in the body to 3.0625 mgs?
  - A. 2
  - B. 3
  - C. 4
  - D. 5

ANSWER: D

2. Down regulation is the result of over-stimulation of post-synaptic receptors resulting in a decrease in their numbers.
  - A) True
  - B) False

ANSWER: A

3. A deficiency in which of the following would result in megaloblastic anemia?
  - A. Cyanocobalamin
  - B. Iron
  - C. Niacin
  - D. Vitamin D

ANSWER: A

4. Which of the following would be administered to inhibit over-administration of dabigatran?
  - A. protamine
  - B. vitamin K-1
  - C. Andexanet alfa
  - D. Idarucizumab

ANSWER: D

5. Which of the following drugs may cause dyspnea, i.e., difficulty in breathing, in a patient who also suffers from Asthma?
  - A. Prazosin
  - B. Carvedilol
  - C. Albuterol
  - D. Nifedipine

ANSWER: B

6. The antihypertensive effect for which of the following drugs is mediated by inhibiting angiotensin converting enzyme?
  - A. Clonidine
  - B. Telmisartan
  - C. Prazosin

D. Ramipril

ANSWER: D

7. Use of metoprolol allows increased physical function prior to the onset of ischemia and chest pain in patients with angina pectoris.
- A) True
  - B) False

ANSWER: A

8. Digitalis positive inotropic effect in the heart is due to an increase in the release of calcium from the sarcoplasmic reticulum?
- A) True
  - B) False

ANSWER: A

9. The patient demonstrates orthostatic hypotension when standing. You recognize that which of the following drug classes has the lowest incidence of orthostatic hypotension?
- A. angiotensin converting enzyme inhibitors (captopril)
  - B. alpha 1 antagonist s(prazosin)
  - C. organic nitrates (nitroglycerin)
  - D. direct vasodilators (hydralazine)

ANSWER: A

10. The Physiotherapy department has contacted you. They wish to know that when a patient is taking which of the following drugs, would heart rate not be an accurate measure of physical exertion?
- A. phentolamine an alpha-1 receptor antagonist
  - B. propranolol a nonselective beta receptor antagonist
  - C. nifedipine a calcium channel blocker
  - D. furosemide a loop diuretic

ANSWER: B

## SECTION TWO

11. Which of the following drugs is a long-acting muscarinic receptor antagonist (antimuscarinic drug)?
- A. Salmeterol
  - B. Ipratropium
  - C. Albuterol
  - D. Tiotropium

ANSWER: D

12. Which of the following drugs is a biologic monoclonal antibody clinically used in the treatment of asthma?
- A. Montelukast
  - B. Albuterol
  - C. Roflumilast
  - D. Omalizumab

ANSWER: D

13. Fall risk is not an associated adverse effect with many of the antiseizure drugs.
- A) True
  - B) False

ANSWER: B

14. Antiseizure drugs which bind to sodium channel in a seizure associated with cerebral ischemia would most likely bind the channel in which of the following states?
- A. Resting
  - B. Activated
  - C. Inactivated
  - D. Reactivated

ANSWER: C

15. Which of the following skeletal muscle relaxants would cause minimal sedation?
- A. Diazepam
  - B. Cyclobenzaprine
  - C. Botulinum toxin
  - D. Baclofen

ANSWER: C

16. L-dopa but not dopamine will cross the blood brain barrier.
- A) True
  - B) False

ANSWER: A

17. Which of the following drugs is most associated with tardive dyskinesia as an adverse effect?
- A. Haloperidol
  - B. Lithium
  - C. Aripiprazole
  - D. Chlorpromazine

ANSWER: A

18. Which of the following is not a potential adverse effect associated with clinical glucocorticoid treatment?
- A. Osteoporosis with chronic use
  - B. Weight loss
  - C. Increased peripheral insulin resistance
  - D. Psychosis

ANSWER: B

19. Which of the following is not a common manifestation of hyperthyroidism?
- A. Bradycardia
  - B. Insomnia
  - C. Restlessness
  - D. Increased deep tendon reflex

ANSWER: A

20. Which of the following drugs increases the risk of lactic acidosis, i.e., a form of metabolic acidosis?
- A. Glucagon
  - B. Glyburide
  - C. Metformin
  - D. Pioglitazone

ANSWER: C

## SECTION THREE

21. High plasma levels of which of the following drugs suppress calcium resorption from the bone?

- A. Parathyroid Hormone (PTH)
- B. Calcitonin
- C. Vitamin D
- D. Thyroxine

ANSWER: B

22. Which of the following is a bisphosphonate drug?

- A. Alendronate
- B. Denosumab
- C. Calcipotriol
- D. Cinacalcet

ANSWER: A

23. Which of the following is a monoclonal antibody that inhibits the action of RANK ligand?

- A. Strontium ranelate
- B. Denosumab
- C. Calcipotriol
- D. Cinacalcet

ANSWER: B

24. Which of the following is not recognized as a key pharmacokinetic concept for antibacterial drugs?

- A. Aminoglycosides are effective at specific Area Under the Curve (AUC) to Minimal Inhibitory Concentration (MIC).
- B. Fluroquinolones are effective at maximal Concentrations ( $C_{max}$ ) to Minimal Inhibitory Concentration (MIC).
- C. Macrolides are effective at time (T) above the Minimal Inhibitory Concentration (MIC).
- D. Tetracyclines are effective independent of their Minimal Inhibitory Concentration (MIC).

ANSWER: D

25. Which of the following is not a topical antibacterial drug?

- A. Bacitracin
- B. Polymyxin B
- C. Neosporin
- D. Erythromycin

ANSWER: D

26. Which of the following drug classes does NOT have its antibacterial effect by inhibiting the synthesis of bacterial cell wall?

- A. Cephalosporins
- B. Penicillins
- C. Aminoglycosides
- D. Carbapenems

ANSWER: C

27. Which of the following statements is true?

- A. Chemotherapy for mycobacterial infections requires multi-drug regimens over long periods.
- B. Mycobacteria rarely develop resistance to treatment when an individual drug is used as monotherapy.
- C. Drugs that target mycobacteria have few adverse effects.
- D. Once treated with an antibacterial course a patient rarely relapses.

ANSWER: A

28. Which of the following statements is incorrect?

- A. Antiseptics may be used on living tissue
- B. Disinfectants are normally used on inanimate surfaces, such as exam tables
- C. Sanitization results in the removal of all organisms and bacterial spores
- D. Preservative required to prevent microbial growth and contamination

ANSWER: C

29. Which of the following is a prodrug of Amprenavir?

- A. Valacyclovir
- B. Famciclovir
- C. Fosamprenavir
- D. Tenofovir disoproxil fumarate

ANSWER: C

30. Which of the following 2 drug combination may be used for prophylaxis to inhibit Human Immunodeficiency Virus (HIV) infection?

- A. Emtricitabine plus Tenofovir
- B. Emtricitabine plus Raltegravir
- C. Enfuvirtide plus Tenofovir
- D. Fosamprenavir plus Maraviroc

ANSWER: A

31. Which of the following drugs may increase the risk of psychiatric disorders due to increased dopaminergic activity in the central nervous system?

- A. Zanamivir
- B. Peramivir
- C. Amantadine
- D. Oseltamivir

ANSWER: C

32. Drugs that are effective for Hepatitis B virus (HBV) are also effective against Hepatitis C virus (HCV)

- A) True
- B) False

ANSWER: B

33. Which of the following drugs is not approved for malarial prophylaxis?

- A. Chloroquine
- B. Artesunate
- C. Primaquine
- D. Mefloquine

ANSWER: B

34. Which of the following drugs, when combined with a blood schizonticide, is clinically used to eliminate the dormant stage of *Plasmodium vivax* and *P. ovale* from the liver?

- A. Chloroquine
- B. Artesunate
- C. Primaquine
- D. Mefloquine

ANSWER: C

35. Which of the following drugs is a cell cycle specific anticancer drug?

- A. Cyclophosphamide
- B. Cisplatin
- C. Methotrexate
- D. Doxorubicin

ANSWER: C

36. Due to the inhibition of cell division, wound healing is often a common adverse effect of many anticancer chemotherapeutic drugs.

- A) True
- B) False

ANSWER: A

37. Which of the following statements regarding the log-kill hypothesis is true?

- A. A 3-log-kill dose represents a decrease in tumor cells from 10,000 cells to 10 cells.
- B. A 3-log-kill dose represents a decrease in tumor cells from 1000 cells to 250 cells.
- C. A 3-log-kill dose represents a decrease in tumor cells from  $10^{12}$  to  $10^4$ .
- D. The log-kill hypothesis is most applicable to the treatment of human solid tumors.

ANSWER: A



38. Which of the following drugs is an irreversible inhibitor of cyclooxygenase?

- A. Aspirin
- B. Ibuprofen
- C. Acetaminophen
- D. Allopurinol

ANSWER: A

39. Celecoxib increases the risk of thrombosis.

- A) True
- B) False

ANSWER: A

40. You have a patient that requires analgesia and wants to minimize repeated nonsteroidal antiinflammatory drug (NSAID) administration. Which of the following drugs would achieve this goal, i.e., which has the longest half-life?

- A. Aspirin
- B. Ibuprofen
- C. Oxaprozin
- D. Piroxicam

ANSWER: D

41. Which of the following drugs inhibits uric acid reabsorption from the proximal renal tubule?

- A. Allopurinol
- B. Colchicine
- C. Probenecid
- D. Febuxostat

ANSWER: C

42. Clinical use of sirolimus for immunosuppression increases the risk of infection.

- A) True
- B) False

ANSWER: A

43. Which of the following adverse effects is not associated with the clinical use of calcineurin inhibitors?

- A. Increased secondary cancer risk
- B. Increased infection risk
- C. Improved wound healing
- D. Nephrotoxicity

ANSWER: C

44. Which of the following drugs increases the risk of inhibiting limb bud development in the developing fetus, i.e., phocomelia?

- A. Thalidomide

- B. Hydroxychloroquine
- C. Tofacitinib
- D. Methotrexate

ANSWER: A

45. Which of the following drugs interferes with folic acid metabolism?
- A. Leflunomide
  - B. Hydroxychloroquine
  - C. Azathioprine
  - D. Methotrexate

ANSWER: D

46. Which of the following is not an immunosuppressive mechanism of action?
- A. Enhancement of Tumor Necrosis Factor (TNF) activity
  - B. Inhibition of Interleukin 2 (IL-2) activity
  - C. Inhibition of Interleukin 6 (IL-6) activity
  - D. Inhibition of Interleukin 17 (IL-17) activity

ANSWER: A

47. Which of the following drugs inhibits the activity of IL-2?
- A. Infliximab
  - B. Anakinra
  - C. Canakinumab
  - D. Basiliximab

ANSWER: D

48. Which of the following drugs is a monoclonal antibody clinically used to treat multiple sclerosis, and has progressive multifocal leukoencephalopathy as an adverse effect?
- A. Dimethyl fumarate
  - B. Fingolimod
  - C. Glatiramer acetate
  - D. Natalizumab

ANSWER: D

49. One mechanism of action is for antacids to neutralize the acid present in the stomach lumen.
- A) True
  - B) False

ANSWER: A

50. Which of the following may be a recognized adverse effect for the Prokinetic drug "Metoclopramide"?
- A. Drug-induced Parkinsonism
  - B. Drug-induced bradycardia

- C. Drug-induced bronchoconstriction
- D. Drug-induced hypertension

ANSWER: A

51. Which of the following is not a mechanism of action for laxatives?

- A. Increase water or lipid absorption into the stool
- B. Prevent water absorption from the intestinal lumen into the wall
- C. Stimulate peristaltic activity in the gastrointestinal (GI) wall
- D. Increase transit time through the gastrointestinal (GI) tract

ANSWER: D

52. Which of the following drugs antidiarrheal effects may in part be due to its antimicrobial activity?

- A. Eluxadoline
- B. Crofelemer
- C. Bismuth
- D. Alosetron

ANSWER: C

53. Which of the following antiemetic drugs also increases appetite?

- A. Ondansetron
- B. Diazepam
- C. Dronabinol
- D. Metoclopramide

ANSWER: C

54. In the clinical treatment of chronic inflammatory disease, which of the following drugs site of action is within the lumen of the gastrointestinal (GI) system?

- A. Olsalazine an aminosalicic acid drug
- B. Vedolizumab a monoclonal antibody that binds to Integrin receptors
- C. Methotrexate an immunosuppressive antimetabolite
- D. Dexamethasone an immunosuppressive corticosteroid

ANSWER: A

55. Which of the following drugs is an opioid antagonist?

- A. Naloxone
- B. Oxycodone
- C. Morphine
- D. Propoxyphene

ANSWER: A

56. Which of the following is not an acute clinical manifestation of opioid intoxication?

- A. Euphoria

- B. Sedation
- C. Analgesia
- D. Respiratory excitation

ANSWER: D

57. Administration of opioid analgesics into peripheral tissue requires action through receptors within the CNS as a prerequisite for analgesic activity.

- A) True
- B) False

ANSWER: B

58. Seeking additional quantities of an opioid even though there are negative personal, financial, or criminal consequences represents which of the following?

- A. Addiction
- B. Dependence
- C. Pleasure
- D. Determination

ANSWER: A

59. Use of a Personal Controlled Analgesia (PCA) does not result in which of the following?

- A. Increased administration of analgesics for pain
- B. Increased patient satisfaction with the analgesia
- C. Increased analgesia
- D. Earlier ambulation

ANSWER: A

60. Aluminum Hydroxide + Magnesium Carbonate (Gaviscon Extra Strength), an over-the-counter antacid, will inhibit the absorption of some medications if taken at the same time.

- A. True
- B. False

ANSWER: A